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ABSTRACT

This paper examines institutional restructuring in higher education for the 1990s and the 21st century and the leadership required for that restructuring. Following an overview and a discussion of selected pertinent demographic, social, economic, technological, and political variables, the paper focuses on the strategic importance of Mid-America to changes occurring in Eastern and Western Europe and the newly industrialized countries of the Pacific Rim. There follows a discussion of the learning enterprise in the schools and colleges of the United States. This is a prelude to a review of an agenda for the 1990s which recommends: (1) analysis of conditions of society and establishments; (2) transforming trend analyses into action plans; (3) development of leadership and human resources; and (4) emphasizing integrity within the learning enterprise. This agenda could lead, it is argued, to the creation of an infrastructure for developing world class information era learning communities. A description of such institutions covers leadership qualities and role, planning for quality technology, and the relationship of society, work and education. Also included are 43 footnotes and citations of 3 other documents. (Author/JB)

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"Restructuring for the 90's ... And Beyond" - The Era of Smart Homes, Wired Communities, Fast Systems, Global Networks, and Fast Forward Learners in a Borderless World

by

Warren H. Groff

Presentations made at the Fall Conference of the Council of North Central Community and Junior Colleges in Little Rock, AR, September 16-17, 1991

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Presentation Summary

Research indicates that leadership consists of three primary activities: (1) analyzing and evaluating, (2) creating visions of the future, and (3) transforming visions into multi-year action plans. The keynote speaker used the framework of analysis, vision, and action plan for the opening presentation on "Restructuring for the 90s." Also, based on Oliver Wendell Holmes' quote "To understand what is happening today or what will happen in the future, I look back," the speaker was introduced by indicating that the conference was held in the first year of the 21st Century.

During the 1990s, the United States faced challenges that shaped the future of the quality of life for the 21st Century. The ultimate purpose of education is to provide society with the critical mass of intellectual capital and the knowledge to function culturally, socially, economically, technologically, and politically. To accomplish that ultimate purpose, individuals develop programs and implement processes which help shape the policy-making function which is then followed by a multi-year action plan to achieve the policies. A strategic planning and budgeting process is intended (1) to raise the level of awareness and understanding about changes that will impact on persons and establishments, (2) to shape policy-making, and (3) to build communities with improved quality of life for all persons.

Numerous issues will be important in the future. No issue will be more important, however, than **rethinking** for **restructuring** contemporary traditional establishments -- health and human services, business and industry, government and military, education and training - and **revitalizing** human resources development.

The presentation provided an overview of the 19 state region of the North Central Association of Colleges and Schools in terms of selected demographic, social, economic, technological, and political variables. This overview was followed by a brief discussion of the strategic importance

of Mid-America to changes occurring in Eastern and Western Europe, particularly the European Community, and industrial nations and newly industrialized countries of the Pacific Rim. A description of The Learning Enterprise with focus on schools and colleges was a prelude for a discussion of an agenda for the 1990s consisting of (1) analysis of conditions of society and establishments, (2) transforming trend analyses into action plans, (3) leadership and human resources development, and (4) integrity within the learning enterprise. The agenda for the 1990s ultimately led to creation of the infrastructure for developing world class "Information Era Learning Communities of the Future."

The keynote speaker was followed by presentations on the "Top Ten Issues Facing Community Colleges" by Al Lorenzo and "Leadership and Technology" by Judith Leslie. Conference participants then discussed significant concepts and implications for rethinking about restructuring and revitalizing based on contextual variables: expansion, steady state, and reduction in scope. Judith Leslie and Warren Groff concluded with comments about "Planning for Networking 'The Wired Society'."

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CREATIVE ORGANIZATIONAL PROTOTYPES

> I believe that there exists a possibility for a type of organization so fundamentally more creative than the traditional, authoritarian hierarchy that it is only dimly reflected, even in the most successful, current practitioners of new management principles.

Peter Senge. Sloan School of Management, Massachusetts Institute of Technology.

"Restructuring for the 90's ... And Beyond"

Part 1. Restructuring for the 90s.

Overview

The 19 state region of the North Central Association of Colleges and Schools experienced fundamental restructuring in the last half of the 20th Century that will continue into the 21st Century. Mid-America is between the East Coast (EC) comprised of the North East, Middle Atlantic, and South East regions and the states on the Pacific Rim (PR). It is the bridge with Canada and Mexico, making the undeclared North American Common Market the largest trading partnership in the world. Mid-America depicts world class breadbasket productivity and quality and was the epitome of industrial era manufacturing extending from extracting raw materials from nature, producing finished products, and distributing them to countries and people with need throughout the world. More importantly, however, the North Central (NC) region represents the extremes of change occurring throughout the world and the impact on cultural values and establishments of society intended to contribute to quality of life.

During the 1950s, the U.S. produced 75% of the world's Gross National Product, manufactured 50% of the world's machine tools, developed electronic and aerospace technology unmatched by other industrialized nations, and had a per capita income twice that of the next closest nation. The U.S. was able to become preeminent because of its investment in Research and Development and its commitment of **access** to **quality** education and training at variable **costs** through diverse private and public institutions for a lifetime of learning from the early years through postgraduate years for the "haves." As the U.S. entered the 1990s, it produced only 20% of the world's GNP, manufactured only 10% of the machine tools, was dependent upon electronic components produced by other nations for Patriot missiles used in Desert Storm, and U.S. per capita income had fallen to 9th place among nations. In fact, when General Motors decided to modernize in the early 1980s, it had to import the dies from Japan for its stamping plants.

The 19 state NC region had widespread demographic, social, economic, and political variability. The NC region had one of the top 10 population growth areas, Phoenix, AZ, and nine of the 12 bottom population decline areas in the U.S. for 1980-86. Peoria, IL, had the worst decline with 7.0%. The Cleveburgh corridor extending from Cleveland, OH, through Akron, Canton, Youngstown, and Warren and into Pittsburgh experienced considerable loss of population. Pittsburgh's population of 676,000 in 1950 dropped to 387,000 by 1986 while Phoenix's population of 107,000 in 1950 grew to 894,000 in 1986. Neither municipality had a

normal distribution. Pittsburgh School District enrollment declined from 88,000 in 1973 to 34,000 in 1980. Pittsburgh was chosen, in part, because it is typical of a city with dependence on one type of manufacturing industry. The collapse of the steel industry is documented in And the Wolf Finally Came by John Hoerr (1). The city has repositioned itself to benefit, hopefully, from the emerging era. In Akron, the rubber industry employed 80,000 people in 1944 and only 9,000 in 1990; its population dropped from 290,000 in 1960 to 223,000 in 1990.

The 19 state NC region contained approximately 53 of 151 million people (35.4% of U.S.) in 1950, 73 of 226 m people (32.4%) in 1980, and 75 of 253 m people (29.8%) in 1990. The number of U.S. representatives dropped from 142 in 1980 to 135 in 1990, most going to CA, FL, and TX.

Historical data are but one dimension. Projective data by the Census Bureau indicated that three of the 19 NC states would be among the 28 states with a population growth of 10% or more between 1986 and 2010 -- AZ (60.2%, 1st), NM (52.0%, 3rd), and CO (25.4%, 15th). In addition, five NC states would be among the nine states with a population growth of up to 10%, seven NC states would be among the ten states with a population decline of up to 10%, and all three of the states expected to have a 10% decline or more are in the NC region -- ND (-10%, 48th), WV (-15.6%, 49th), and IA (-16.5%, 50th). The U.S. average population growth is projected to be 16.9%. Demographic, social, economic, and political change within states and regions is varied.

Just as change is occurring in Mid America, so too changes occurred in Eastern and Western Europe as well as industrialized nations and newly industrialized countries of the Pacific Rim. The European Community is a single market for goods and services for 320 million people with a per capita purchasing power greater than that of the U.S. The 12 EC nations are Belgium, Britain, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. The European Commission, the policy making arm of EC, announced in 1991 a plan to create a common European system of higher education including the expansion of the European Community Course Credit Transfer Scheme and the European Community Action Scheme for the Mobility of University Students which encourages student exchanges throughout the EC (2).

The Pacific Rim will play an important role in shaping the future. Japan leads the Pacific Rim in economic growth followed by four newly industrialized nations: South Korea, Taiwan, Hong Kong, and Singapore. These are the fastest growing economies of the world. They are followed by the capitalist free-market countries of the Association of Southeast Asian Nations: Brunei (the richest country in the

world by per capita income), Thailand, Malaysia, and Indonesia. **Japan** is the most dynamic of the world's developed nations. Its growth rate is about double the rest. It is second in the world in gross national product -- years ago passing the Soviet Union, which is 60 times its size. It is a world leader in high tech, electronics, computers, special materials, robotics, and more.

South Korea is the largest shipbuilding nation in the world, its auto industry is the fastest growing in the world, and its steel production gives it top billing. **Taiwan** is the world's leader in economic growth over the past 20 years; it has had more years of double-digit growth than any other nation in recent times. Hong Kong and Singapore are city states that are very productive. **Hong Kong** exports more manufacturing products than the Soviet Union and East Europe combined. **Singapore** is a financial base and wholesaler to countries in the Pacific Rim and is even more dynamic in terms of economic growth (3).

Following the occupation of Japan after World War II, Japan began to envision an advanced technical era based on advances in science and technology, particularly communication and information technologies and electronics. Japan created the Institute for the Information Society. After much study and a series of papers, the Institute published The Information Society as Post-Industrial Society (4). Author Yoneji Masuda keynoted the World Future Society General Assembly in Toronto in 1981 and described how Japan was identifying strategic industries for the advanced era.

In 1978, the Republic of China (Taiwan) convened the First National Science and Technology Conference with the aim to develop a long range national policy on science and technology (5). Taiwan identified seven areas: energy, materials, information, automation, biotechnology, food technology, and environmental science and technology. Taiwan created three institutes: Institute for information Industry, Industrial Technology Research Institute, and a Development Center for Biotechnology. In 1985, Yng-chien Sheu published an exhaustive analysis of vocational industrial education in the Republic of China (6). Then, Mr. Sheu headed a delegation which analyzed vocational industrial education in most industrialized nations including Sweden, France, United Kingdom, West Germany, Japan, and the U.S.(7). In 1989 Taiwan created a Vocational Technical Education Research Center modeled somewhat after the National Center for Research and Development in Vocational Education operated by a grant from the Office of Education Research and Improvement of the U.S.D.E.

What do these countries have in common? Both the EC and PR see the need to anticipate the future to focus units of government in a coordinated way on their vision of the

future and to position human resources development as a high priority. Most EC and PR countries have ministries of education that function as a branch of centralized government some of which are democracies. PR countries are Confucian work-ethic cultures. The family is the most important unit of society and less is expected from government. They have limited natural resources but an abundance of human resources. Two of them have no tariffs and are completely free-trade countries. They have tied their economies to the world economy. They are synchronizing human resources development systems and program structure, academic and vocational technical, to the information intensive workplaces of the future. Most important, they stress and value **EDUCATION** and are improving it (8). They are **rethinking** and **restructuring** to **revitalize.**

During the post World War II Sputnik era, the U.S. launched one of the greatest education expansion and reform efforts in the world directed at providing greater **access** to **quality** services at a **reasonable cost** through mass public education. The primary purpose was to win the space race and keep the peace by beating the Russians in science and technology. The unique American invention, called the two year college, was a significant player in a loosely coordinated mosaic of service providers to produce the critical mass of mathematicians, scientists, and technicians to win the space race. While the cold war with the Russians waned, an international economic space race which is far more significant than the arms race has emerged. This new race involves a more important part of the anatomy -- the **mind** -- which is infinitely more complex than an appendage. The new race is one of perfecting connectivity in synapses of mental information processing interfaced with information processing through communication and information technology. While the U.S. has a reasonably good infrastructure for the latter, there is serious question about the infrastructure to produce higher order cognitive information processors in sufficient number and quality. It is a "High Touch - High Tech" space race that education must help the U.S. win.

VISION

> The very essence of leadership is you have to have a vision. It's got to be a vision you articulate clearly and forcefully on every occasion. You can't blow an uncertain trumpet.
>
> Father Theodore Hesburgh

'The Learning Enterprise in the United States.

Institutions are "of society." That is to say, institutions are created to fill a need of the society of which they are a part. As society evolved in the agricultural era, the U.S. created and spread the common school. Then, as the industrial era evolved, the U.S. expanded schooling to the secondary level and created the vocational track. American education was globalized during the height of the industrial era, 1945-1960. After the Sputniks were launched in 1957, contemporary traditional industrial era schools were modernized to help produce mathematicians, scientists, and technicians to compete in the space race through new curricula in math and sciences.

The modernization of contemporary industrial era schools and colleges was insufficient. Numerous other establishments entered education and training. Today the learning enterprise consists of elementary and secondary schools, college and universities, postsecondary occupational education, formal apprenticeship programs, second chance training, employer-based training and development including corporate colleges, prison-based training, military training and government training such as the Federal Executive Institute (9).

Comments here will focus on schools and colleges. Contemporary traditional industrial era schools were based on the underlying principles of the society of which they were a part -- division of labor, hierarchial structure, and standardization. Traditional schools consist of bureaucratic layers based primarily on the age range of students served. The 1983 Longitudinal Survey indicated that of 100 high school students, 34 graduated from the vocational track, 32 graduated from the general track, 11 graduated from the academic track, and 24 dropped out. The 1989 National Assessment of Vocational Education indicates that the average academic student takes 3.18 vocational units. The general track does not prepare a student for the world of work or for higher education. Vocational education in the U.S. was conceived during the industrial era. The program structure reflects the occupational structure of jobs during U.S. preeminence of that era. The education reform movement of the 1980s focused almost entirely on the academic track. In many instances, the raising of high school academic graduation requirements has exacerbated the dropout problem which reached 29% nationally by 1990. Research indicated that the traditional approach to the academic track education reform is insufficient. Technical education of high quality should be the program of choice of many students, perhaps most students, and should be available to the current workforce.

A profile of schools in the 19 state NC region taken from the nation's report card in 1990 is as follows. Minnesota led the U.S. in high school graduation rate with 90.1%, while Arizona placed 48th with 61.1%; the U.S. average was 71.1. Nationally, 28 states use primarily the American College Test (ACT) and 22 states use the Scholastic Aptitude Test (SAT). Most states using the SAT are on the east and west coasts. Of the 19 NC states, 17 use the ACT and two use the SAT. Iowa led the U.S. with an ACT mean score of 20.1 and West Virginia placed 26th of 28 with 17.4; the U.S. average was 18.6. Colorado and Indiana use the SAT and had scores of 908 and 871 respectively; the U.S. average was 903. Wyoming placed 7th in pupil/teacher ratio with 14.6 and Michigan placed 45th with 19.8; the U.S. average was 17.4. Wyoming placed 10th with expenditures per pupil at $5,051 and Arkansas placed 47th at $2,989; the U.S. average was $4,243.

Nationally, an American student dropped out of school every eight seconds of the school day, a teenager had a baby every 67 seconds, a child was arrested for drugs every seven minutes, and every year U.S. schools graduated 700,000 young people who could not read their diplomas. The U.S. Army rejected 60,000 potential enlistees who were not smart enough to serve (10).

NC states had a total of 940 accredited institutions: 8 certificate granting establishments (1%), 335 associate degree establishments (35.6%), 210 bachelor establishments (22.3%), 204 masters (21.7%), 28 specialist establishments (3.0%), and 155 doctoral establishments (16.4%).

The 1970s and 1980s were characterized by movement toward centralized state-wide governance systems. In the U.S., **education is a state function.** During the 1950s, many states were decentralized with a minimum number of statutes, policies, and procedures for planning, financing, and reporting. That changed dramatically in the 1960s. With a great deal of impetus from the national government, states began the movement toward centralized coordination in areas of academic affairs, student services, and business services. Several states began strategic planning and a few states implemented a process for program review.

Costs rose considerably in the 1980s. Instructional expenditure per student, pre-kindergarten through grade 12, placed the United States second among nations behind Switzerland. Colleges and universities hired more non-teaching staff than other employees from 1975-1990 (11).

During the early 1980s, the education reform movement was primarily focused on modernization within the contemporary traditional education model. Some reform projects were within the classroom, within a subject,

between subjects, between tracks, and between schools and districts. The LaGuardia Community College Middle College High School was a notable experiment between layers (12). In 1974, MCHS opened as an alternative high school for high risk students under the joint auspices of the New York City Board of Education and LaGuardia Community College of the City University of New York. Despite the high risk nature of the student body, about 85% graduated from high school and about 75% go on to college. In 1987, a MCHS was started on the Mid-Town Campus of Shelby State Community College with similar results.

In the early 1980s, it became apparent that in a very short time it would be possible to consider seriously other forms of education and training formats than the placebound and timebound industrial era models. Miniaturization of electronics and advances in communication and information technologies made it possible to deliver education and training services into the community, home, or workplace. A Task Force on High Technology and a Task Force on Telecommunications for the Ohio Board of Regents in 1992-93 recommended an uplink on each university campus and a downlink on each two-year campus as a part of such a new system. A group of small school districts and a two-year college in Western Wisconsin were already linked together in the late 1970s. In 1985, Jack Taub made a presentation on The Education Utility which helped add impetus to the idea that partial technological delivery systems could deliver high quality education and training services (13). In January 1989, data, voice, and video were transmitted for the first time through a fiber optic cable to a home in Perryopolis, PA. Thus, it became possible to develop smart homes that could receive electronic mail, banking, stock quotes, information services, and education and training services through electronic highways.

A study in 1982 indicated that the Massachusetts Institute of Technology had no other viable alternatives than to restructure its programs on a conceptual framework of cooperative lifelong learning (14). The John Burns School of Medicine at the University of Hawaii implemented a problem-based curriculum modeled somewhat after the McGill University Medical School program (15). The conceptual framework is based on solutions to health problems -- a physician must solve "X" number of medical problems.

The decade of the 1980s can be characterized by paradigm shifts. Miniaturization of electronics made it possible to progress from mainframe, to desktop, to laptop, to palmtop. Advances in communication and information technologies made it possible to think about entirely new frameworks for organizing education and training beyond the contemporary traditional models. It became possible to move beyond placebound and timebound frameworks which are

provider controlled to developmentally appropriate alternative education "choices" such as technological delivery systems, cooperative lifelong learning, solution based learning, and others. Thus, during the decade of the 1980s it became possible to go beyond transformational leadership within an establishment to transformational leadership between and among establishments to build, or rebuild, communities for improved quality of life.

Numerous national projects were launched to "Rethink, Restructure, and Revitalize" communities and education -- "Building Communities" by the American Association of Community and Junior Colleges in 1986; "New Futures Project" by the Annie E. Casey Foundation; "Next Century Schools" by the RJR Nabisco Foundation; and "New Pathways to a Degree" by The Annenburg Foundation; "America 2000;" "Catholic Schools for the 21st Century;" "The Edison Project;" and numerous state initiatives were implemented in the 1990s. "America 2000" created 535 New America Schools, at least one in each congressional district. "The Edison Project" opened 200 campuses by fall 1996. Restructuring projects include Professional Development Schools recommended by The Holmes Group, The Michigan Partnership for New Education and the "Building Community Partnerships" by the Office of Substance Abuse Prevention of the U.S. Department of HHS.

Jerrold Zacharias stated, "It is easier to put a man on the moon than to reform public education." Based on that notion, it was anticipated that it might take approximately 30 years to have fully operational "Learning Communities of the Future." It was anticipated that the decade of the 1990s would focus on cultivating the mindset for rethinking about restructuring and revitalizing. That phase would include an analysis of conditions of society and institutions and refining trend analyses into action plans in the early 1990s and leadership development and human resources development in the mid 1990s. These efforts would yield greater clarity to conceptual frameworks for the above-mentioned "choices" of alternative education. It should be noted that legislators in several states had already begun the process of restructuring. Pennsylvania and Arkansas, for example, began converting area vocational centers into postsecondary technical colleges-institutes. Once clarity is added to conceptual frameworks, through research and thoughtful experimentation, then programs could be developed to prepare the "new professional" workforce to staff the alternative education choices which were created. Furthermore, most of the current education workforce would have retired in the 1990s and communication and information technologies became more standardized and new voice input and sensing technology perfected.

Conditions of Society and Institutions

The Census Bureau regularly collects data about demographic, social, and economic variables. It collects data about establishments in years ending in a "2" and "7". Nationally, the U.S. lost many manufacturing establishments and jobs, while services establishments and jobs increased. Manufacturing establishments make up about 20% of the U.S. economy; they increased productivity by approximately 3.5% and prices 3.1% in the 1980s. By contrast, while services constitute 50% of the economy, they increased productivity by only 0.2% and prices by 5.2%; services increased productivity by 0.6% annually between 1980 and 1986 and dipped 0.5% annually between 1986 and 1990. Just as manufacturing went through restructuring in the 1980s, so too services went through restructuring in the 1990s.

Accrediting associations, professional and regional, require an institution to demonstrate that it can continue to accomplish its purposes through planning, stability, and improvement. Many states are requiring strategic planning. For example, the Nebraska Coordinating Commission for Postsecondary Education shall establish and revise as needed a comprehensive statewide plan for postsecondary education which shall include role and mission statements for public institutions. In establishing the plan, NCCPE shall assess the postsecondary needs of the state in the following areas:

a. The basic and continuing needs of various age groups;
b. Business and industry needs for a skilled work force;
c. Demographic, social, and economic trends;
d. The ethnic composition of the population;
e. College attendance, retention, and dropout rates;
f. Needs of high school graduates and place-bound adults;
g. Needs of residents of all geographic regions; and
h. Any other areas the commission may designate.(16)

The charge to the NCCPE is typical. Many statewide coordinating commissions have also mandated increased data collection and reporting. Interestingly enough, however, a doctoral study completed in 1991 indicated that many states still had no formal process for program review (17).

Purposes for assessing the external environment include (a) to provide a profile of client characteristics, (b) to anticipate future directions of employment opportunities, (c) to foresee advances in science and technology, (d) to forecast opportunities requiring collaborative institutional responses, (e) to monitor federally-supported student financial assistance and federally-supported research and services programs, and (f) to take precautions about shifts in governmental responsibility to state and local levels. In the 1980s, institutions that did collect data about the external environment tended to have paper copy data books. In the 1990s, many institutions were online and using the

information for administrative purposes such as customized training or in solution-based courses to be discussed later.

It was decided to analyze data about demographic, social, economic, technological, and political variables. In many states and institutions, this information was of great value to the strategic planning and budgeting process. Comments here will focus on schools and colleges in the "services" sector of the economy.

Although the distance is only a few feet when elementary-school children move their chairs to form reading groups, it is a move which often determines the direction for the rest of their lives. The advanced reading group often becomes the academic or high quality vocational track students of tomorrow and the low reading group often becomes the low quality vocational track or general track students or dropouts (18).

The figures for dropout rate and curriculum completion by gender and racial/ethnic background are quite different.

	Total	Blacks		Hispanics		Whites	
	%	Males	Females	Males	Females	Males	Females
Dropouts	24	48	45	42	30	21	19
Completion	76	52	55	58	70	79	81
Vocational	34	17	21	21	35	26	38
General	31	29	29	29	28	36	31
Academic	11	6	5	8	7	17	12

Of those students who have not dropped out, Sedlak estimates at least two-thirds of the students are cognitively and emotionally disengaged from their learning (19).

Data about disabled, handicapped, at-risk, and illiterate persons are important in this discussion. Approximately 15 % of individuals are disabled or handicapped. Analysis indicates that as high as 65 % of inner city school children may be at risk. While 13 % of white Americans 17+ years of age are functionally illiterate, 43% of black and 56% of Hispanic Americans 17+ years of age are functionally illiterate. A large percentage of special needs students of all ages are in vocational and general programs.

Other data are important to consider. The number of Hispanics in the USA is growing five times faster than the total population. U.S. Hispanics, at 20 million in 1990, grew to 29 million by 2000 - 10% of the population. By 2025 Hispanics will be the largest minority group in the U.S. While 1 in 4 white Americans is under 17, 1 in 3 black Americans and 1 in 2 Hispanic Americans is under 17. Nearly 90% of the USA's Hispanics live in nine states: California

(6.6 million, 23% of the state's population), Texas (4.1 m, 24%), New York (2.1 m, 12%), Florida (1.5 m, 12%), Illinois (.8 m, 7%), Arizona (.6 m, 18%), New Jersey (.6 m, 8%), New Mexico (.5 m, 35%), and Colorado (.4 m, 11%).

The educator workforce does not match the student profile. Data for 1984-85 were as follows:

	Students	Teachers
White	71.0%	89.6%
African-American	16.2%	6.9%
Hispanic	9.1%	1.9%
Asian-American	2.5%	.9%
Native American	.9%	.6%

The mismatch will be greater in the future. Blacks and Hispanics preparing to teach have declined in recent years.

The U.S. soon faces a shortfall of hundreds of thousands of science workers. Science courses are often a student's primary exposure to technology. What happens to students in science is a national disgrace and embarrassment. Science and technology should be an essential part of early learning experiences while the curiosity of young children is uninhibited and it is possible to shape a mindset about an intellectual voyage of exploration that should never end. Instead, most students receive little science instruction until middle school and then the focus is primarily a series of exercises in memorization. Four of every five students take biology in high school, but fewer that a third continue with chemistry and less than half continue on to physics. A presentation at a National Science Foundation conference in 1988 indicated that of approximately 24,000 high schools, about 7,000 didn't even offer physics, 4,000 didn't offer chemistry, and 3,000 didn't offer biology. Many of the courses that were offered were taught by persons for whom science was not their major and the courses were offered with inadequate equipment or without a laboratory experience. No wonder that U.S. high school graduates rank last or near last among developed nations in science skills.

Most shocking is what happens in postsecondary science. In <u>They're Not Dumb, They're Different: Stalking the Second Tier</u>, Sheila Tobias indicates:(20)

> ...that between 1966 and 1988 the proportion of college freshman planning to major in science and mathematics fell by half. Even after the introductory course, the flow out of science continues seemingly unchecked: a third to a half of those who initially indicate an interest in science leave science well into the major, some even after completing a science degree.

A National Science Foundation study found that less than one third of the freshman who switched out of science and engineering felt the course work too difficult. Research indicates that students have little training in working collectively to solve problems and their experience has taught them to fear cooperation. Tobias concludes:

> College retention strategies cannot be left to chance. Even if--especially if--the nation achieves the massive restructuring proposed, tomorrow's recruit to science will not be of like mind and motivation as yesterday's. Restructuring or no restructuring, we need new thinking about "who will do science" and "why," thinking that may challenge science teachers to grapple with issues they have have not focused on before. These are how to recruit, teach, reward, and cultivate different kinds of students to science, students who are not younger versions of themselves.

Statistics on progress made by persons from different backgrounds as they are processed through the contemporary traditional educational pipeline from high school to graduate school are as follows: (21)

	White	Black	Hispanic
Graduate from high school	83%	72%	55%
Enter college	38%	29%	22%
Complete college	23%	12%	6%
Enter graduate school	14%	8%	4%

Greater inequality exists for Native Americans. Two year colleges play a major role in the attempt to correct inequality of opportunity in that they enroll 43% of all blacks, 55% of Hispanics, and 57% of Native Americans (22).

The contemporary traditional educational model that has evolved over the years is a set of discrete institutions that are labeled primarily by the age range of their students: nursery schools, day care centers, kindergarten, elementary schools, junior high schools, senior high schools, two year colleges, four year undergraduate colleges, universities with graduate programs, and post graduate institutions. "People working in each of the above institutions have virtually no connection with all the others and little awareness of educational activity provided by the total" (23).

Vocational, technical, and occupational (VTO) education in the U.S. was conceived and developed for an industrial society. For the past several decades, however, the U.S. and other industrialized nations have been making the transition into an early technical era. During the 1990s the U.S. and other nations will move into an advanced technical era (ATE). VTO must be restructured to reflect the society of which it is a part. More importantly,

however, VTO must be restructured to be reflective of the evolving ATE. Data clearly suggest the need for thinking strategically about education and training in an ATE with some bold and creative ways for achieving greater equality of opportunity for all people through restructured establishments and entirely new learning paradigms.

Restructuring VTO was not easy. Several projects were significant. The Southern Regional Education Board published Goals for Education: Challenge 2000 and formed a consortium for Improving General And Vocational Education In The High School to focus on mathematics, science, and communications skills (24). Curriculum was strengthened for manufacturing trades, health and related fields, and a few other areas by upgrading subjects and adding a technology course. Grubb and others at the National Center for Research in Vocational Education (NCRVE) listed several patterns in "The Cunning Hand, The Cultured Mind": Models For Integrating Vocational And Academic Education: (25)

1. Incorporating academic competencies into vocational courses.
2. Combining academic and vocational teachers to incorporate academic competencies into vocational courses.
3. Making the academic curriculum more vocationally relevant.
4. Modifying both academic and vocational education through curricula "alignment."
5. The Academy model: schools within schools that focus on a field -- health, electronics, business.
6. Replacing conventional departments with occupational clusters.
7. Single occupational high schools - magnet optional schools.
8. Maintain conventional academic and vocational departments, but organize to have career paths or occupational majors.

The first challenge of the 1990s space race was to improve the synapses of the mind through rethinking about restructuring and revitalizing the learning enterprise in the U.S. Some thought that challenge could be met by tinkering with the candle. Others thought that entirely new laboratories had to be constructed to invent the light bulb. Sufficient evidence existed to suggest that modernization of the contemporary traditional model was necessary, but insufficient. Diversity made the U.S. preeminent during the industrial era. Would diversity of "choices" beyond the contemporary traditional model not also hold the potential to make the U.S. preeminent, or at least a competitive player, in the advanced technical era?

Trend Analysis to Action Plans

A parallel challenge to the synapses of the mind is the connectiveness between communication and information technologies and action plans for restructuring human resources development systems. The trend analysis program was modeled after other TAPs such as the one created by the American Council of Life Insurance in 1967 and by United Way of America in the 1980s. The trend analysis program networks with the Federal Laboratory Consortium, private sector research and Development, Council on Competitiveness, U.S. Department of Labor SCANS, Work In America, Office of Technology Assessment of the U.S. Congress, Project 2025, National Science Foundation Project 2061, American Society for Training and Development, Federal Library and Information Center, Coalition For Networked Information, Satellite Broadcasting, National Technology Information Services, NSFNET, Office of Educational Research and Improvement of the U.S. Department of Education, etc.

The U.S. government operates about 300 research and development centers, 210 of which belong to the Federal Laboratory Consortium (FLC) for Technology Transfer that was formally chartered by the Federal Technology Transfer Act of 1964. FLC conducts research in agriculture, commerce, defense, energy, health and human services, science, space, technology, transportation, etc. The Defense Advanced Research Projects Agency (DARPA) spends more than $300 million each year on "dual-use" technology that have both civilian and defense applications. DARPA was the agency that first funded the early generation of super computers in the 1950s and 1960s. Today DARPA is being geared toward dual use projects such as research in semiconductors, high-definition display technology, etc.

NASA has been working on satellite communications since 1960. Since the early 1970s the Europeans and Japanese have poured billions of dollars into competing programs in an effort to dominate an international satellite communications market. NASA's Advanced Communications Technology Satellite (ACTS) Program is an effort to push the U.S. ahead of European and Japanese competition. A NASA satellite, launched in December 1992, tested new technology for the way in which companies do business in 19 regions.

The education reform movement after the Sputniks led to the commitment to accelerate the development of new knowledge in selected areas and to disseminate it quickly to reduce the lag in adoption of new knowledge. The federal government supported Research and Development Centers, Regional Educational Laboratories, and Educational Resource Information Centers. Many of these resources are online and include networks such as ADVOCNET, a national electronic mail system linking adult, vocational, and technical

educators and administrators; EIS by the National Clearinghouse for Bilingual Education; and SpecialNet.

The role of the library has changed dramatically in the last decade. The library and media center have been transformed into an information and technology hub that is already indispensable to students and staff (26). In many establishments, library circulation is computer controlled; holdings and identification cards are barcoded to speed up checkout through scanning by optical readers which are linked to circulation and can be used in acquisitions for holdings with high volume use. Card catalog drawers have been replaced by computer terminal search stations that not only scan resources within a library, but can also tap data bases and expert systems throughout the world. An important issue relates to the increase in scientific journals. Before 1978 there were 8,062 scientific journals. During the next decade, 26,621 scientific journals were added for a total of 34,683 (27). Small libraries cannot afford to acquire and circulate such an increased number of journals.

There is evidence that library and computing services organizations have begun to converge as the technologies used to store and transmit information become similar (28). Furthermore, there is evidence that the characteristics inherent in information combined with the technical capability provided by new information technology have created the prospect of a new range of possibilities (29). Distance is irrelevant. The data bases and expert systems can be accessed in a variety of settings -- workplace, community, or home. Are homes becoming high tech centers? A survey in 1990 indicated that 57 % of American homes have cable TV, and there are approximately 9,000 cable services (30). A survey of 91 million households indicated that 71 % had VCRs, 31 % answering machines, 22 % PCs, and 19 % had CDs (31).

Scientific and technological advances in transitors, semiconductors, lasers, compact discs, cable television, word processors, satellite communications, fiber optics, and other fields are changing the basic structure of work and the way in which people must and will function as workers, citizens, and individuals. For example, consider but a few such advances. In December 1988, Intel Corporation unveiled the 80486 chip that can scan the 29,000 pages of the 29 volumes in Encyclopedia Britannica in 2 seconds. In January 1989, a switch was thrown and a house in Perryopolis, PA, became the first house in the U.S. to receive its telephone call and cable TV over a single conduit, a strand of flexible glass, known as fiber optics, only 0.005 inches in diameter. In December 1989, Germantown, TN, became the first area of the nation to install digital switching equipment as part of a state-of-the-art telecommunications network initiated two years earlier. These advances make it

possible for youngsters in these two municipalities to collaborate with the knowledge of Encyclopedia Britannica available instaneously and anything else that is on line.

Scientific and technological advances in barcoding, optics, sensor, smart card, and voice activated devices have tremendous implications for the way in which work will be restructured. By the mid 1980s, 125 vendors demonstrated vision technology devices on the market at a Detroit show. By 1990, there were 25 venders of smart card technology with many applications to health care. The Hospital of the Future exhibit at INFOMART assembles the most recent contemporary technology for an acute care room in a tertiary hospital. The Futures Center at the Franklin Institute Science Museum contains eight exhibit areas: FutureVision, FutureComputers, FurtureSpace, FutureEarth, FutureEnergy, FutureMaterials, FutureHealth, and Future and You.

Numerous organizations provided leadership for information networking. The Association of Research Libraries (ARL) joined CAUSE and EDUCOM to form the Coalition For Networked Information. The Library of Congress created the Federal Library and Information Center Committee (FLICC) in 1965 to achieve better utilization of federal library and information center resources. FLICC established the Federal Library and Information Network (FEDLINK) in 1978 to allow federal libraries to participate in the Online Computer Library Center.(OCLC) The Library of Congress is pilot testing with three secondary schools the use of a prototype package of computers and optical disks.

The centrality of data and information services is seen in numerous activities and projects. One example is the White House Conference on Library and Information Services for Productivity, for Literacy, and for Democracy was held in July 1991. The National Commission on Libraries and Information Science (NCLIS), with assistance from a 30 member Conference Advisory Committee, planned the White House Conference authorized under Public Law 100-382. The 50 states, District of Columbia and U.S. territories, as well as American Indian Tribes and federal library community conducted preconference activities to ensure widespread participation among their constituents to develop priorities. For example, Michigan conducted four regional meetings prior to a statewide conference in June 1990. Texas conducted ten regional meetings prior to a statewide conference in January 1991. Texas developed fact sheets for each of the three topics -- productivity, literacy, and democracy -- to assist in "Building Community Partnerships."

In 1987, a report of the White House Office of Science and Technology Policy called for a national computer network to link government, scientific research, and higher education (32).

Leadership and Human Resources Development

The primary sources of the professional workforce for education and training establishments are colleges and universities. The ultimate goal of undergraduate education is to provide a series of learning experiences to prepare individuals to conduct a safe practice of service in a particular role. The ultimate goal at the first graduate level is to provide a series of learning experiences to prepare individuals to conduct a refined practice of service in a particular role and/or to manage the safe practice of several service providers. The ultimate goal at the second graduate level is to provide a series of learning experiences to prepare individuals to (a) conduct a more refined practice of service; (b) engage in basic research to contribute the knowledge base in a narrow field of pursuit; or (c) manage an establishment of society -- leadership to shape the direction of the quality of service, a field of research, or establishments, unilaterally or through interagency coupling. The ultimate goal of postgraduate education tends to focus on refining the role of the service provider, researcher, or leader of an establishment (33).

Individuals analyze theory and research, evaluate exemplary practice, and then carefully design and implement a series of experiments to test new methods. This is true for leadership skills development, human resources development, policy development, and the development of technology such as strategic planning.

Research indicates that leadership consists of three primary activities: (1) analysis and evaluation, (2) creating visions of the future, and (3) transforming visions into multi-year action plans. Research indicates that leaders tend to be remarkably well-balanced people who embody four areas of competency: (1) vision, (2) the ability to communicate that vision, (3) positive self-regard, and (4) building trust with associates (34). Many leaders are passionate dreamers who have deeply-felt convictions about what should be achieved by individuals or through institutions of society. In addition, successful leaders have learned to communicate their vision to others and inspire participation, sometimes conviction, in the achievement of the vision. The ability to communicate implies being articulate in a number of verbal and non-verbal ways, as well as being able to design and implement a way to guide an institution or system through a process that will help make that vision become a reality.

Individuals then design the format for learning experiences intended to produce the desired outcomes and test it. Most professionals are familiar with the format of traditional universities. A few comments are made about

several nontraditional formats before describing the Postgraduate Diplomate Institute.

The Programs for Higher Education at Nova University developed field-based doctoral program specializations in higher education; adult education; and vocational, technical, and occupational education. Each student must complete six core seminars, four practicums, two week long Summer Institutes, a comprehensive examination, and a Major Applied Research Project (MARP). The program is offered to approximately 500 candidates at 15 cluster sites. Since 1984, the VTO specialization has completed four cycles: Agents of Change, 1984-1985; Transformational Leaders, 1986-1987; Strategic Thinkers, 1988-1989; and Restructuring Establishments; 1990-91 (35). In addition, two of the core seminars are Governance and Management and Human Resources Development. An institution's strategic planning process should yield strategic directions and a plan with organizational development and human resources development components which are synchronized. Nine students from Mercer County Community College (NJ) enrolled in the program worked with the Executive Council to develop a strategic planning process that yielded goals to which student, and employee, research and scholarship can linked.

The Child and Youth Studies (CYS) doctoral program was created from the Early and Middle Childhood doctoral program based on a desire to strengthen transformational leadership skills and specialization skills in curriculum, site-based management, and special needs. CYS begins with Leadership I and concludes three years later with Leadership II. Leadership I includes an analysis of societal problems, leadership research, strategic planning, organizational development and human resources development, powerful thinking, and professional development. Each student specifies a three year Professional Development Plan and keeps a journal of significant concepts and implications. Leadership II consists of a synthesis of the journal, creation of a vision of the future, and specification of a five year Professional Development Plan (36). Six clusters were started between spring 1989 and winter 1991 when the National Cluster was formed making extensive use of contemporary communication and information technologies including electronic classrooms in March and April (37). Technology intensive delivery systems will become a dominant mode for the delivery of leadership and HRD programs.

Continuing education occurs at the postgraduate level. The Snowmass Institutes for Strategic Planning have attempted to advance that particular technology. In the early 1980s, most participants were attempting to understand the basic concepts such as mission review, program review, the audit of other internal variables, and assessment of external variables. By the 1990s, the Institutes went

beyond the basics to include culture, climate, Total Quality Commitment, visions creation and scenario development, and restructuring. Approximately 60-70 higher education leaders attend each year, sometimes in teams. Many return for a second year and as few return a third year because they recognize that the technology is still in the early stages of evolution in education ( ).

The technology of strategic planning evolved from previous technologies such as Program Evaluation and Review Technique (PERT); Planning, Programming, and Budgeting Systems (PPBS); and Management By Objectives (MBO). These technologies assumed a closed system, somewhat constant variables, and minimal intrusion of external variables. These technologies were evolutionary stepping stones to the contemporary technology of Strategic Planning (SP). SP is the analysis of contextual variable, internal and external, for the purpose of creating visions of the future, selecting a preferred scenario, and then developing a multi-year action plan. Total Quality Management (TQM) has crept into practice and the literature, as have TQ Control, TQ Commitment, ad TQ Improvement. Because we manage things and lead people, TQ Commitment or TQ Improvement is more likely to catch on if an enhancement to SP is to take place. In any event, TQC is an enhancement to SP and consists of (a) continuous improvement of quality, (b) central focus on the consumer as in "Student Success," (c) systematic improvement of operations, (d) open work environments - atmosphere, (e) long-term thinking, (f) human resources development, and (g) coordination and leadership (38).

Where are college with implementation of strategic planning? Many colleges have improved the collection of data about the internal environment. A few colleges have improved the collection of data about the external environment, particularly technical colleges and institutes or institutions with a serious commitment to customized services and training and to community renewal (39). Only a very few have taken a Values, Visions, and Vitality (40) approach, helped seriously in Building Communities (41), or created a new nontraditional approach to learning.

Graduate and postgraduate programs had to be modified from change-agentry and transformational leadership with an intramural focus to strategic thinking and restructuring with an intermural focus. Partnerships evolved between universities, the American Association of Community College Colleges, and member institutions of CNCCJC in the 1990s. Nova delivered solution-based doctoral programs to the field through the traditional cluster format or the technology-based format. The technology-based programs were delivered to the home or workplace. Alternate year Summer Institutes were held in Washington and provided participants the opportunity to make numerous contacts throughout the

U.S. Government. The Doctor of Arts at George Mason University became available through the Community College Satellite Network, as did other high quality doctoral programs. Consultation was provided to assist a college with intermural strategic planning focused on community renewal, synchronizing community goal setting and leadership development components. Then, persons from all walks of life could pursue scholarship and research focused on specific strategic directions. Some of the participants completed masters, specialists, doctorate degrees. Greater diversity in program format became available along with a North American Credit Transfer Scheme with Student Mobility.

"Trusteeship" is a high calling. Boards, chief executive officers, and "legislators" of various types of governing bodies and establishments at all levels have the responsibility to interpret conditions of society and institutions, interpret trends and anticipate future directions, and develop policy and strategy to improve quality of life. The above-mentioned leaders and other influential stakeholders were the beneficiaries, for the most part, of industrial era schools and colleges. They have been programmed to attempt to pursue increments of improvement within the contemporary industrial era model, to tinker with the candle, when the conditions call for luminaries who can invent light bulbs. Therefore, **Interdisciplinary Postgraduate Diplomate** (IPD) institutes were developed for rethinking about restructuring and revitalizing to create "Learning Communities of the Future." The IPDs consist of a one week summer institute, structured learning activities throughout the year, and a second one week summer institute. Sessions on "Developing Information Age Learning Paradigms" were available in the **Strategic Thinking** Cycle and the Snowmass Institutes on Strategic Planning beginning in 1988 and in Leadership I and II seminars (42).

CREATING SOMETHING NEW AND FRESH

> The major task for society and the economy is to create something new and fresh as opposed to just improving on the old.
>
> Peter Drucker. Innovations and Entrepreneurship Principles and Practices. New York, NY: Harper and Row, Inc., 1985.

Integrity of the Learning Enterprise

Voluntary accreditation by the regional accreditation associations is one of the distinctive hallmarks to protect the integrity of American education. The concept of voluntary accreditation means that the education academy, not ministers of education in some centralized bureaucratic structure, will protect the integrity of American education which is intended to produce the critical mass of intellectual capital and knowledge to help the U.S. democratic society to function effectively and efficiently. The concept that the education academy will protect the integrity of the service industry means a demonstration of visionary, proactive, transformational leadership in shaping the evolution of human resources development systems. In the case of institutions committed to "building communities," it clearly means helping education make the transition from scholastic cultures of the Middle Ages to "Learning Communities of the Future."

Accrediting associations require an institution to demonstrate that it can continue to accomplish its purposes through planning, stability, and improvement. To do that, the accrediting associations require an institution to undertake a self study and then use peers to serve as consultant evaluators to review the institution, the context in which it exists, its people, and the self study report and other documents and evidence.

Just as "trustee" type persons have a need to raise their level of awareness and understanding, so too consultant evaluators have a need for high quality continuing education experiences dealing with criteria about planning and institutional effectiveness and assessing student "academic" achievement.

THINKING

> Thinking with a fixed circle of ideas tends to
> restrict the questions to a limited field.
> And, if one's questions stay in a limited field,
> so also do the answers.

Lyall Watson. Lifestyle. New York, NY: Simon and Schuster, 1979.

Part II. Planning for Networking the Wired Society.

Leadership - Self, Organization, and Society

The ultimate purpose of education is to provide society with the critical mass of intellectual capital and the knowledge to function culturally, socially, economically, technologically, and politically. To accomplish that ultimate purpose, individuals develop programs and implement processes which help shape the policy-making function which is then followed by a multi-year action plan to achieve the policies. A strategic planning and budgeting process is intended (1) to raise the level of awareness and understanding about changes that will impact on persons and establishments, (2) to shape policy-making, and (3) to build communities with improved quality of life for all persons.

Research indicates that leadership consists of three primary activities: (1) analysis and evaluation, (2) creating visions of the future, and (3) transforming visions into multi-year action plans. Research also indicates that leadership can occur at the self, organizational, and societal levels. It is important to understand the paradigm shift that is occurring, the learning enterprise, the conditions of society and institutions, and convert trends into action plans. The first step in exercising leadership is analysis and evaluation of self followed by the development of a personal vision and a plan of action.

Planning Technology - Strategic Planning with Quality

Strategic planning is still in its infancy in adoption by education. Very few institutions and systems have positioned planning as a prominent priority, and even fewer institutions have linked planning and budgeting activities. In too many instances, education is an event reported rather than a change mechanism.

TQC - Society, Work, and Education

America's Choice: High Skills or Low Wages states that current practices are condemning American workers to Third World paychecks (43). If the U.S. is to be a beneficiary, not a victim, of the transition to an advanced technical era, the concept of TQC must be applied to the connectivity of society, work, and education. The quality of life in the U.S. is dependent, in large measure, on the preparation of persons with culturally diverse backgrounds who become knowledge workers qualified at a postsecondary level in areas identified in reports such as those produced by the Council on Competitiveness and other groups (44). In the end, it important to remember the words of Walt Disney, "If you can dream it, you can do it."

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WARREN H. GROFF

Warren H. Groff is a consultant and a National Lecturer for Nova University. He taught in the public schools in Pennsylvania, served as an Assistant Dean in the College of Education at Temple University, and taught doctoral seminars in higher education, consulted for the American Board of Pediatrics and the Governor's Justice Commission of Pennsylvania, served as Vice President for Academic Affairs at a private college, was the Executive Director of a consortium involving a medical college and two universities, served as Vice President for Academic Affairs for seven years and then Director of Research and Development at North Central Technical College in Mansfield, OH, and was Dean of Academic Affairs at Shelby State Community College in Memphis, TN.

He has written extensively on the topics of leadership, human resources development, strategic planning, and economic development. He chaired the statewide Task Force on High Technology for the Chancellor of the Ohio Board of Regents in 1982-83 and also served on the OBR Telecommunications Committee. From 1978 to 1986, he chaired the Plan Development Committee of an eight county health systems agency and also served as Vice President of the 45 member Board of Directors from 1984-86. In 1984, he chaired a 44 member Consolidation Committee for School Improvement for the Board of Education for the Mansfield City Schools. He served as president of the College of Education Alumni Society of the Pennsylvania State University from July 1984 through June 1986.

He has been one of the two faculty for the week-long Snowmass Institutes on Strategic Planning for the past eleven years. He has conducted workshops on strategic planning for the Massachusetts Board of Regents; Tennessee Board of Regents; Directors of Research, Planning, and Development of the Vocational, Technical, and Adult Education Districts in Wisconsin; Texas Association of Chief Community College Student Affairs Administrators; and the Nebraska Technical Community College Association. He has consulted with the National Center for Research in Vocational Education on selected projects. Groff assisted a hospital in a year-long strategic planning process and has conducted several strategic planning workshop for school boards associations. He has helped numerous institutions with strategic planning, in writing proposals, and accreditation activities. In the early 1980s, he helped an institution in reaffirmation of accreditation through strategic planning.

Groff has taught 55 doctoral seminars to over 1000 students throughout the U.S. for Nova University. He teaches Human Resources Development, Governance and Management, and Emergence of Vocational, Technical, and Occupational Programs in the Ed.D. Programs in Higher Education. The four two-year cycles in vocational, technical, and occupational education were: Agents of Change, 1984-85, ED 272 247; Transformational Leaders, 1986-1987, ED 290 860; Strategic Thinkers, 1988-89, ED 319 882; Restructuring Establishments, 1990-91. He teaches Political Processes and Social Issues in the Ed.D. Program in Early and Middle Childhood and Leadership I and II in the Ed.D. Program in Child and Youth Studies. Leadership I begins the program and Leadership II concludes the three-year program. Groff taught leadership through contemporary communication and information technologies to a national cluster composed of students from throughout Canada and the U.S.

He conducted a strategic planning workshop for the Office of Substance Abuse Prevention of the U.S. Department of Health and Human Services and has provided technical assistance to six Building Community Partnership grantees.

Groff was graduated from Millersville University with a B.S. in Ed., from The Pennsylvania State University with an M. Ed., and from Temple University with an Ed.D.